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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,702	05/19/2006	Keon Joon Ahn	2108.2	5121
7590 Hammer & Hanf Suite G 3125 Springbank Lane Charlotte, NC 28226				
EXAMINER				
LEGASSE JR, FRANCIS M				
ART UNIT		PAPER NUMBER		
2878				
MAIL DATE		DELIVERY MODE		
11/12/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/579,702

Applicant(s)

AHN ET AL.

Examiner

FRANCIS M. LEGASSE JR

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-9 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4 November 2008 has been entered.

Status of Claims

Claims 1, 5 and 6 are amended.

Claims 3-4 and 10-11 are cancelled.

Claims 1, 2, 5-9 and 12 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato et al. (US Patent No. 5,077,803, “Kato”, hereinafter).

Regarding claim 1, Kato (figures 3, 4A and 4B) discloses an optical pointing device capable of being installed in a slim personal portable device, comprising:

- a cover glass (20) closely contacting an object (finger) (col. 15, lines 50-55);

- a light source (13) unit emitting light to the cover (20); and
- a light receiving unit (12, 25, 26, 40) reflecting the light reflected by the object (finger) in a predetermined direction, condensing the light, and picking up an image of the condensed light; the light receiving unit (12, 25, 26, 40) comprises:
 - a reflecting mirror (24) for reflecting the light reflected by the object at the cover glass (20) the reflected light traveling horizontally;
 - at least one condensing lens (26) disposed on a path of light reflected by the reflecting mirror to condense the light; and
 - an optical image sensor (12) picking up the image of the light transmitted through the condensing lens (26), and being vertically installed to perpendicularly encounter the horizontally traveling light.

Regarding claim 2, Kato (*figures 3, 4A and 4B*) discloses an optical pointing device capable of being installed in a slim personal portable device, comprising:

- the light source unit (21a, 26) comprises a light source (13) emitting light and a light source guide (21a) guiding the light emitted from the light source (13) to the cover glass (20).

Regarding claim 5, Kato (*figures 3, 4A and 4B*) discloses an optical pointing device capable of being installed in a slim personal portable device, comprising:

- a cover glass (20) closely contacting an object (finger) (col. 15, lines 50-55);
- a light source (13) unit emitting light to the cover (20); and

- a light receiving unit (12, 25, 26, 40) reflecting the light reflected by the object (finger) in a predetermined direction, condensing the light, and picking up an image of the condensed light; the light receiving unit (12, 25, 26, 40) comprises:
- a reflecting mirror (24) for reflecting the light reflected by the object at the cover glass (20) the reflected light traveling horizontally;
- at least one wave guide (20) installed in the predetermined direction to the reflecting mirror (24), to guide and condense the light (26) (col. 7, lines 18-25);
- an optical image sensor (12) installed next to the wave guide (20) to pick up the image of condensed light, and vertically installed to perpendicularly encounter the horizontally traveling light.

Regarding claim 8, Kato (*figures 3, 4A and 4B*) discloses an optical pointing device capable of being installed in a slim personal portable device, wherein:

- the optical path in the predetermined direction is longer than a length for providing a sufficient depth of a focus.

Note: the image sensor will be in focus in order to acquire a useable image.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baharav et al. (US 7,274,808 B2, "Baharav", hereinafter) in view of Yee et al. (US Patent No. 5,822,073, "Yee", hereinafter).

Regarding claim 6, Baharav (figures 2, 16A and 16B) an optical pointing device capable of being installed in a slim personal portable device, comprising:

- a cover glass (115, 110) closely contacting an object (finger) ([0043], lines 10-11);
- a light source (120) unit emitting light to the cover (115, 110); and
- a light receiving unit (144, 159, 130, 135, 140) reflecting the light reflected by the object (finger) in a predetermined direction, condensing the light (130), and picking up an image (140) of the condensed light;
- wherein the light receiving unit (155, 158, 159, 130, 138, 135, 128, 140) comprises

- a first reflecting mirror (158) for reflecting the reflected light in a first direction and forming a horizontal optical path;
- at least one wave guide (155) horizontally installed in the first direction to the first reflecting mirror (158, 130), to guide and condense the light;
- a second reflecting mirror (138) for reflecting the condensed light to a second direction; and
- an optical image sensor (140) installed in the second direction to the second reflecting mirror (138), to pick up the image of the condensed light.

Baharav fails to teach that the wave guide is an optical wave guide composed of a transparent optical plastic or glass to minimize loss of light, and has a polished incident surface and a polished refraction surface to prevent a diffused reflection of the light.

Yee (*figure 7*) teaches a wave guide that is an optical wave guide composed of a transparent optical plastic or glass to minimize loss of light, and has a polished incident surface (26) and a polished refraction surface (27) to prevent a diffused reflection of the light (col. 8, lines 3-8 and 20-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the waveguide of Yee in combination with the device of Baharav because by polishing the end faces it is possible to reduce the amount of reflection, thus improving the quality and intensity of the light beam.

Regarding claim 12, Baharav as modified by Yee (*Baharav: figures 2, 16A and 16B*) an optical pointing device capable of being installed in a slim personal portable

device, comprising a wave-guide (155) but fails to teach that the incidence face and the refraction each of which is convexly formed.

It is common knowledge in the art to use a convex type surface in a waveguide.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a convex surface in the wave guide of Baharav as modified by Yee because it will collimate the beam traveling parallel to the lens axis and once the light passes through the lens it will focus the light onto a specific spot, thus improving both the accuracy and intensity of the light impinging upon the image sensor.

Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato.

Regarding claim 7, Kato (*figures 3, 4A and 4B*) discloses an optical pointing device capable of being installed in a slim personal portable device, comprising a wave-guide (20) but fails to teach that the incidence face and the refraction each of which is convexly formed.

It is common knowledge in the art to use a convex type surface in a waveguide.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a convex surface in the wave guide of Kato because it will collimate the beam traveling parallel to the lens axis and once the light passes through the lens it will focus the light onto a specific spot, thus improving both the accuracy and intensity of the light impinging upon the image sensor.

Regarding claim 9, Kato (*figures 3, 4A and 4B*) discloses an optical pointing device capable of being installed in a slim personal portable device, comprising an

optical image sensor (12) but fails to teach that the light receiving unit includes a shading unit installed on the path of the light to remove noise of the light.

It is common knowledge in the art to design an image sensor containing a device or method to remove or reduce noise.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a specific device to reduce noise in the optical pointing device of Kato because it will improve the quality of the signal, thus improving the image being detected.

Response to Arguments

Applicant's arguments with respect to claims 1-2, 5-9 and 12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Francis M. LeGasse Jr whose telephone number is (571) 272-9798. The examiner can normally be reached on Monday through Thursday 7:00 am to 5:30 pm E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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